NewsRelease

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23681-0001

Sonja Alexander
Headquarters, Washington, DC
(Phone: 202/358-1761)

Lynn Jenner
Goddard Space Flight Center, Greenbelt, MD
(Phone: 301/286-0045)

Keith Henry
Langley Research Center, Hampton, VA
(Phone: 757/864-6120)

For Release: March 15, 1999

RELEASE: 99-015

NASA selects top inventions of the year

The inventor of a device that helps stabilize NASA spacecraft has been selected to receive the NASA Government Inventor of the Year Award. The NASA selection committee also chose a high temperature resin material to receive the NASA Commercial Invention of the Year.

Inventor Charles E. Clagett, a Goddard Space Flight Center, Greenbelt, MD, employee and Head of the Component and Hardware Systems Branch at Goddard, received the honor for the Apparatus for Providing Torque and for Storing Momentum Energy."

"Being selected the NASA government inventor of the year is really a surprise, an honor, and quite a shock," said Clagett. "I appreciate the fact that I have been recognized for my invention."

Commonly known as the SMEX Reaction/Momentum Wheel, the device was developed for NASA's Small Explorer program (SMEX). A compact mechanism was needed that could accelerate at a high rate with little vibration to fulfill the missions' science requirements. The wheel's compact design is durable with at least a four-year life expectancy while providing improved performance and better stability for a spacecraft, and significantly reducing vibration.

This reaction wheel invention has been highly successful on the last two Small Explorer missions, the Transition Region and Coronal Explorer and the Submillimeter Wave Astronomy Satellite. The high acceleration rate and low vibration device allows detection of signals that would have been obscured by previous reaction wheels, thus enabling Goddard to support missions that previous technology could not support.

NASA's Commercial Invention of the Year goes to Langley Research Center's nominated PETI-5, short for "Phenylethynyl Terminated Imide Oligomers," fifth composition. This material can used both as a glue that holds fibers together and as an adhesive in a variety of aerospace and commercial applications. Langley inventors Paul Hergenrother, Joseph Smith and Brian Jensen were awarded three patents on the novel material.

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PETI-5 was originally developed for high-speed, high-temperature aircraft applications because it is strong and lightweight. Its exceptional combination of properties has attracted the interest of U.S. industry. PETI-5 products are now commercially available and have resulted in about $10 million in sales.

To date, NASA has licensed PETI-5 technology to four companies. Designers and manufacturers like PETI-5 because it is easy to process into complex parts and because of its mechanical properties, durability, non-toxicity and ability to adjust to changing environments. In the future, PETI-5 may be applied to consumer products like high-performance automobile engines.

The inventors will be honored at a NASA Headquarters ceremony where they will receive an award check and certificate.

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